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APPARATUS AND METHOD FOR ENHANCED CALLER IDENTIFICATION SERVICES

Abstract:

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A method and system (20) providing enhanced caller identification services when the identity of the calling party is not necessarily associated with a predetermined calling party telephone number. The system comprises a network node (60) including a program module (69) adapted to receive an identification code and a calling party telephone number; and a telephonic communication device (80) including a memory (85) with an index (250) wherein a first plurality of calling party telephone numbers are associated with a second plurality of calling party names according to a third plurality of personal identification codes. The communication device (80) includes a program module (87) adapted to receive the identification code and to search the index (250) for a selected calling party name corresponding to the identification code. The system (20) and method may also be implemented by using a network node (60) to maintain the index, and using the node (60) to search for a substituted calling party telephone number corresponding to the identification code. The substituted telephone number is then sent to the telephonic communication device (80) for display (or announcement) of a calling party name which corresponds to the substituted number according to an index in the device.

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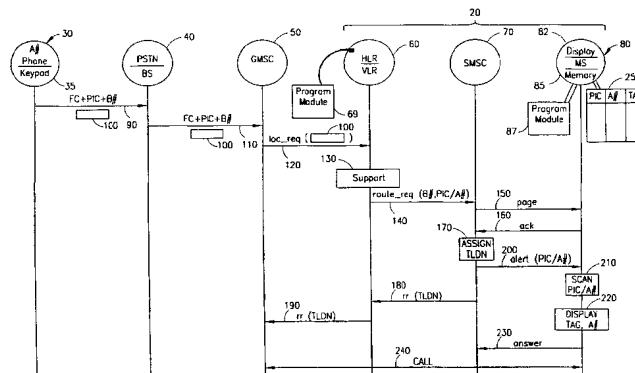
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**APPARATUS AND METHOD FOR
ENHANCED CALLER IDENTIFICATION SERVICES**

BACKGROUND OF THE INVENTION

Technical Field

5 This invention relates generally to apparatus and methods for caller identification services. More particularly, the invention relates to a method and system providing identification of calling parties even when they are not associated with a particular
10 telephone number.

History of Related Art

15 Caller identification services have been available for some time. Presently, calls between telephone customers in the United States are established on the basis of a numbering plan which requires each customer line to be identified by a ten-digit directory number, or calling party telephone number. The number comprises a three-digit area code defining a specific geographic region, followed by a three-digit office
20 code identifying a particular central office which is, in turn, followed by a four-digit customer line identifier served by the central office.

25 When the calling party, having a ten-digit directory number or A-number attempts to contact the called party, also having a ten-digit directory number, or B-number, the A-number is passed on to the telephonic communication device where the called party is located. The calling party name, which has previously been associated with the A-number, is displayed at the telephonic communication device. The device may be a separate apparatus in electronic communication with a desk-top telephone, or alternatively, fully-integrated into a telephone, such
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as a mobile cellular telephone. The association of a calling party name and a specified calling party number is accomplished by the called party. More primitive caller identification services merely present the calling party telephone number to the called party, without any calling party name.

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Generally, caller identification services function adequately with respect to the called party subscriber. However, there are many occasions when current implementations of the service are unable to operate effectively. For example, if the called party is screening calls, and the calling party must make contact using a telephone directory number which is not normally associated with their name (e.g., from a pay phone during an emergency), it is likely that the called party will not take the call when the unrecognized telephone directory number appears on the caller identification display at the location of the called party. Further, when several members of a family commonly make use of a single phone, it is useful to know which particular member of the family may be attempting to make a call. Traditional caller identification services only provide the A-number, or at best, a single name associated with the A-number for recognition purposes. This may not serve the needs of the called party.

Therefore, what is needed is a system and method providing caller identification services when the identity of the calling party is not necessarily associated with a predetermined calling party telephone number. Such a system and method would allow the called party to associate a calling party name with a preselected personal identification code, such that only the code was needed for transmission to the called party to identify the associated calling party name. The use of such a system and method would also allow

individuals within a family unit to uniquely identify themselves, even though all persons were obliged to use the same calling party telephone number. Further, unique identification of calling parties by name would be possible even when a telephone with an unknown or unrecognized calling party telephone number was used to place a call to the called party, as may occur during emergencies or other circumstances.

SUMMARY OF THE INVENTION

The system and method of the present invention can be implemented in two different ways, a terminal solution or a network solution. The terminal solution makes use of a cellular telephone terminal, or other telephonic communication device, which maintains an index in a memory. The index contains a list of calling party telephone numbers in a one-to-one correspondence with a list of calling party names. The names can also be designated as "tags." The index is ordered according to a set of Personal Identification Codes (PICs), where each tag is associated with a unique PIC. When the cellular phone receives the PIC as part of an initial communication or call set-up, the list is scanned and the tag, or name associated with the PIC, is displayed.

The terminal solution also includes a switching center which is adapted to receive a PIC, along with the calling party telephone number, or B-number, during a call set-up operation. Thus, when a calling party dials the number of the cellular telephone terminal in an attempt to complete a call connection, the PIC is passed along to the switching center (with a special function code to alert the switching center to the incoming PIC). After verifying that the terminal user supports scanning for the PIC, the PIC and B-number are passed on to the terminal station after the Temporary

5 Local Directory Number (TLDN) is assigned. If no support is provided by the terminal, then the A-number (i.e., the number of the calling party) is sent on to the mobile station for scanning, and a tag value associated with the A-number is displayed.

10 While the terminal solution requires a telephonic communication device programmed to scan for a PIC, the network solution implements PIC scanning operations in the Home Location Register (HLR) or Visitor Location Register (VLR) currently associated with the called party. In this case, the PIC is accepted by the HLR (if the called party subscribes to this service), and the PIC is matched up within the HLR to an A'-number, which the called party has preselected as a part of its user profile. The HLR substitutes the A'-number for the A-number of the calling party, and passes it on to the mobile station for scanning using the conventional caller identification module located within the called party mobile station. The tag, or calling party name, associated with the A'-number is then displayed at the called party mobile station. In this network solution implementation, the index is maintained in the HLR, instead of in the called party terminal. The network solution allows the use of conventional telephones or caller identification devices which have not been modified to implement the terminal solution discussed previously.

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30 The method of the present invention comprises the steps of receiving a PIC and a calling party telephone number at the switching center, sending the PIC to the telephonic communication device (for the terminal solution implementation), and searching the index within the communication device for the selected calling party name which corresponds to the PIC. In the network solution, instead of passing the PIC to the mobile station from an HLR or VLR, the PIC is scanned

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within the HLR/VLR to match an A'-number. In this implementation, the A'-number is sent to the mobile station for conventional scanning operations with respect to caller identification, and the tag corresponding to the A'-number in the mobile station is displayed to the called party.

BRIEF DESCRIPTION OF THE DRAWINGS

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A more complete understanding of the structure and operation of the present invention may be had by reference to the following detailed description when taken in conjunction with the accompanying drawings, wherein:

Fig. 1 illustrates the system and method of the present invention as a terminal solution; and

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Fig. 2 illustrates the system and method of the present invention as a network solution.

DETAILED DESCRIPTION OF PRESENTLY PREFERRED EXEMPLARY EMBODIMENTS

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The system and method of the present invention can be implemented in either of two ways, by means of a terminal solution or a network solution. The terminal solution uses a telephonic communication device, typically a cellular phone, which has been specially modified. The network solution can be implemented using conventional telephonic communication devices, such as cellular telephones, and makes use of a specially programmed Home Location Register (HLR) or Visitor Location Register (VLR), or other wireless communications network node.

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Turning now to Figure 1, the terminal solution for implementing the system and method of the present invention can be seen. In this case, the system 20 of the present invention comprises a Mobile Station (MS)

80 and an HLR/VLR 60. Typically, the HLR 60 communicates with the MS 80 by means of a switching center, such as the Serving Mobile Service Center (SMSC) 70. The MS 80, which can be described as a telephonic communication device, may also be replaced by a separate element (similar to conventional caller identification devices) which is in electronic communication with a conventional telephone. The MS 80 has a memory 85 which contains a list or index 250. The index 250 comprises a series of Personal Identification Codes (PICs), typically arranged in serial order, associated with several different A-numbers (i.e., calling party telephone numbers) and "tags," or calling party names. The index 250 is set up by the MS 80 subscriber in any order of preference desired, so that each PIC in the index 250 corresponds to a desired tag, or calling party name. In addition, a series of A-numbers are also included in the index, as is well known in the art of caller identification. However, in conventional caller identification services, there is no PIC included in the index, and identical A-numbers are not allowed.

The method of the present invention, using the terminal solution, is implemented by first having the calling party operate a telephone 30 having a keypad 35, enter a function code, a PIC, and the telephone number of the called party (which corresponds to the MS 80). The combination of the function code, a PIC, and B-number is noted in Figure 1 as the combination 100. An example of a typical combination 100 would be a series of digits similar to "*555 + 01 + 333-333-3333" wherein the entry "*555" is the function code (which enables reception of the PIC by the HLR/VLR 60), the entry "01" is the PIC, and the entry "333-333-3333" is the B-number of the called party, which in this case is MS 80. The combination 100 is sent over a wire line

5 interface 90 to the Public Service Telephone Network (PSTN) 40. Alternatively, a cellular telephone may be used in place of the telephone 30, and in that case an air interface 90 is substituted for the wire line connection 90 and the PSTN 40 is replaced by a Base Station (BS) 40.

10 At this point, the PSTN/BS 40 sends the combination 100 over the network connection 110 to a switching center, such as a Gateway Mobile Switching Center (GMSC) 50, and a location_request message 120, including the combination 100, is sent from the GMSC 50 to an HLR 60 or VLR 60, where it is received by a program module 69. A query is made within the HLR/VLR 60 at step 130 to determine whether the user profile 15 contained in the HLR/VLR 60 indicates that the MS 80 supports the PIC scanning function. If so, then a route_request message 140, containing the B-number (i.e., the called party telephone number or telephone number corresponding to the MS 80) and the PIC is sent to a mobile service center, such as the Serving Mobile 20 Service Center (SMSC) 70, from the HLR/VLR 60.

25 Once the SMSC 70 has received the B-number and the PIC, a paging message 150 is sent to the MS 80. The paging message 150 is acknowledged at step 160 and a Temporary Local Directory Number (TLDN) is assigned at step 170 by the SMSC 70 to the MS 80. An alert message, containing the PIC, is then sent to the MS 80 from the SMSC 70 at step 200. This also prompts sending a return_result message 180 containing the TLDN 30 from the SMSC 70 to the HLR/VLR 60. The TLDN is in turn passed on to the GMSC 50 from the HLR/VLR 60 as a return_result message 190. The messages 180, 190 serve to close the transactions opened by the original location_request message 120 and the route_request 35 message 140.

After the alert message 200 containing the PIC is received by the MS 80, the index 250 contained in the memory 85 of the MS 80 is scanned by a software module 87 which resides in the MS 80 at step 210 in an attempt to match the PIC to a tag in the index 250. The tag corresponding to the PIC is then displayed on the MS 80 display 82 at step 220 (or announced by voice to the subscriber). If the user of the MS 80 desires, the call may be answered at step 230, and the call connection completed at step 240. If no tag is matched, then the A-number corresponding to the PIC will be displayed (or announced).

The preceding series of steps assumes that the query within the HLR/VLR 60 at step 130 results in the conclusion that the enhanced caller identification services of the present invention are supported in the MS 80. If the inquiry meets with a negative result, such that the services are not supported, then the route_request message 140 will simply carry the A-number of the calling party telephone 30 to the SMSC 70. Then, instead of the PIC being sent in the alert message 200 to the MS 80, the A-number will be sent. Thus, the scanning program module 87 within the MS 80 will use the A-number to match a tag in the index 250, instead of the PIC. The tag corresponding to the A-number will then be displayed on the MS 80 display 82 (or announced by voice), instead of the tag corresponding to a PIC. The other steps in the process are the same. It should be noted that this alternative call set up process is equivalent to that where no PIC is submitted by the calling party from the telephone 30.

The illustration in Figure 1 shows an MS 80 having a memory 85 as the telephonic communication device of the present invention. However, a specially-developed intelligent interface box, similar to conventional

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caller identification modules currently available, can also be used in conjunction with a conventional telephone terminal to provide the enhanced caller identification services of the present invention. In this case, the telephonic communication device of the present invention comprises an intelligent peripheral in electronic communication with a conventional telephone terminal.

10 Thus, the memory 85 contains an index 250 with a first plurality of calling party telephone numbers, or A-numbers, and a second plurality of tags, or calling party names. Selected ones of the first plurality of calling party telephone numbers are indexed in a one-to-one correspondence with each one of the second plurality of calling party names, or tags, according to 15 a third plurality of PICs. Whereas the PICs within the index 250 are unique, the tags and A-numbers may be duplicated any number of times.

20 A program module 87, also resident within the memory 85, is adapted to receive a preselected PIC from a network node, which is typically an HLR/VLR 60, and to search the index 250 for a selected calling party name or tag corresponding to the preselected PIC which it has received. The PIC is selected from the third 25 plurality of PICs within the memory 85 and index 250. The network node 60, which is typically an HLR or VLR, is adapted to receive a function code that prompts sending the preselected PIC to the telephone communication device or MS 80.

30 There are several advantages which coincide with implementation of the terminal solution. One is that the terminal subscriber may directly designate the contents of the index 250 in the local telephonic communication device 80. In addition, multiple tags, 35 or calling party names, can be entered for the same A-number, using different PICs. That is, if two brothers

live at the same home address, and each would like to be identified individually to other parties, they can each be designated with a different PIC. This occurs even though each brother has the same A-number. Of course, if the MS 80 does not support this service, the A-number received by the MS 80 will be matched to the first tag corresponding to the A-number, and that first matching tag will be displayed at the MS 80 instead.

Turning now to Figure 2, the network or legacy solution for implementing the system and method of the present invention can be seen. In this case, the index 260 is maintained within the HLR/VLR 60, in a corresponding memory 65. The initial steps by the calling party using telephone 30 to forward the combination 100 through the PSTN/BS 40 to the GMSC 50 and the HLR/VLR 60 are the same as described for the terminal solution. However, at this point, the query as to whether the MS 80 user subscribes to the enhanced caller identification services of the present invention (i.e., the node is authorized to receive the PIC) is made at step 265. If so, then a program module 67 within the HLR/VLR 60 is used to scan the index 260 in a manner similar to that described for the terminal solution. However, in this case, the matching PIC is used to substitute an A'-number (i.e., prime number) for the A-number sent to the HLR/VLR 60 by the location_request message 120. Then, the route_request message 140, containing the B-number of the MS 80, along with the A'-number substituted for the actual A-number of the telephone 30, are sent to the SMSC 70.

The MS 80 is paged at step 150, and the page is acknowledged at step 160 as before. After the TLDN is assigned at step 170, the alert message 200 is sent from the SMSC 70 to the MS 80, carrying the A'-number to the MS 80. The table 88, which is well known in the art of caller identification, and carried within the

memory 85 of the MS 80, is scanned for a matching A'-number which is equated with a tag. The table 88 values have been preselected by the user of the MS 80 to provide a display of the tag value which corresponds to preselected A'-numbers.

Once the scanning of the table 88 is completed by the MS 80 at step 215, the corresponding tag from the table 88 is displayed on display 82 (or announced via synthesized voice) at step 225. At this point, the user of the MS 80 may decide to answer the call at step 230, and the call can be completely set up at step 240.

This process, using the network solution system 20, assumes that the inquiry as to whether the MS 80 user subscribes to the enhanced services of the present invention in step 265 was answered affirmatively. If the query meets with a negative result, then the A-number of the telephone 30 is passed on to the SMSC 70 in the route_request message 140, in place of a preselected A'-number. The alert message 200 will then carry the A-number of the telephone 30 to the MS 80, instead of the A'-number, and the scanning of the table 88 will make use of the A-number in step 215, instead of the A'-number. Thus, the displayed (or announced) result will be a tag, or calling party name, which corresponds to the A-number, and not the A'-number. The other steps in the process are the same.

It should be noted that the network solution is not capable of providing multiple PICs for a single A'-number maintained in the index 260. Thus, the tag displayed (or announced) at step 225 will always correspond to the A'-number which is encountered first by the scanning program among the PICs maintained in the index 260. If no tag is found to correspond with the A'-number, then the A'-number itself will be displayed, or announced, to the subscriber.

In an alternative embodiment of the instant invention, a tag or calling party name can be stored in the table 260 in the place of an A'-number. That is, the alternative table 260 may comprise a series of personal identification codes in a one-to-one correspondence with a series of tags, or calling party names. If it is determined in step 265 that the MS 80 users subscribe to the enhanced caller identification services of the instant invention, then the program module 67 within the HLR/VLR 60 is used to scan the index 260 in a manner similar to that previously described. However, in this case, the matching PIC is used to substitute a tag for the A-number sent to the HLR/VLR 60 by the location_request message 120. Then, the route_request message 140, containing the B-number of the MS 80, along with the tag substituted for the actual A-number of the telephone 30, are sent to the SMSC 70. Thus, the tag is sent in place of the A'-number.

Again, the MS 80 is paged at step 150, and the page is acknowledged in step 160. After the TLDN is assigned as step 170, the alert message 200 is sent from the SMSC 70 to the MS 80, carrying the tag to the MS 80 (in place of the A'-number). The table 88 is not needed in this case, and the MS 80, using the tag, may display the name of the calling party directly. Of course, a program module, such as program module 87 shown in Fig. 1, will be used within the MS 80 to determine that a tag has been received, and should be displayed to the user of the MS 80. If the MS 80 user does not subscribe to the enhanced services of the present invention, as determined in step 265, then the A-number of the telephone 30 is passed onto the SMSC 70 in the route_request message 140, in place of the tag. The remainder of the process is as described for the process wherein an A'-number is not available for

sending to the SMSC 70, and the A-number is sent instead, described above.

5 Although the invention has been described with reference to specific embodiments, this description is not meant to be construed in a limited sense. The various modifications of the disclosed embodiments, as well as alternative embodiments of the invention, will become apparent to persons skilled in the art upon reference to the description of the invention. It is, 10 therefore, contemplated that the appended claims will cover such modifications that fall within the scope of the invention, or their equivalents.

CLAIMS

1 1. A system providing caller identification
2 services when the identity of the calling party is not
3 necessarily associated with a predetermined calling
4 party telephone number comprising:

5 a network node including a first program module
6 adapted to receive a preselected personal
7 identification code and a preselected calling party
8 telephone number; and

9 a telephonic communication device including a
10 memory containing an index including a first plurality
11 of calling party telephone numbers and a second
12 plurality of calling party names, wherein selected ones
13 of the first plurality of calling party telephone
14 numbers are associated in a one-to-one correspondence
15 with each one of the second plurality of calling party
16 names according to a third plurality of personal
17 identification codes, and a second program module
18 adapted to receive the preselected personal
19 identification code from the network node and to search
20 the index for a selected calling party name
21 corresponding to the preselected personal
22 identification code, wherein the preselected code is
23 selected from the third plurality of personal
24 identification codes.

1 2. The system of Claim 1, wherein the network
2 node is adapted to receive a function code that prompts
3 sending the preselected personal identification code to
4 the telephonic communication device.

1 3. The system of Claim 1, wherein the network
2 node is a Home Location Register (HLR) or a Visitor
3 Location Register (VLR).

1 4. The system of Claim 1, wherein the telephonic
2 communication device is in electronic communication
3 with a conventional telephone terminal.

1 5. The system of Claim 1, wherein the telephonic
2 communication device is a mobile telephone.

1 6. The system of Claim 1, wherein more than one
2 of the second plurality of calling party names
3 correspond to a selected one of the first plurality of
4 calling party telephone numbers.

1 7. The system of Claim 1, wherein the telephonic
2 communication device includes a display, and the
3 selected calling party name is displayed on the
4 display.

1 8. The system of Claim 1, wherein the telephonic
2 communication device includes a display, and the
3 preselected calling party telephone number is displayed
4 on the display when none of the second plurality of
5 calling party names corresponds to the preselected
6 personal identification code.

1 9. The system of Claim 8, wherein the
2 preselected calling party telephone number is not
3 selected from the first plurality of calling party
4 telephone numbers.

1 10. A method of providing caller identification
2 services when the identity of the calling party is not
3 necessarily associated with a predetermined calling
4 party telephone number comprising the steps of:

5 receiving a preselected personal identification
6 code and a preselected calling party telephone number
7 at a network node;

8 sending the preselected personal identification
9 code to a telephonic communication device including a
10 memory containing an index including a first plurality
11 of calling party telephone numbers and a second
12 plurality of calling party names, wherein selected ones
13 of the first plurality of calling party telephone
14 numbers are associated in a one-to-one correspondence
15 with each one of the second plurality of calling party
16 names according to a third plurality of personal
17 identification codes; and

18 searching the index for a selected calling party
19 name corresponding to the preselected personal
20 identification code.

1 11. The method of Claim 10, further comprising
2 the step of displaying the selected calling party name
3 corresponding to the preselected personal
4 identification code.

1 12. The method of Claim 10, further comprising
2 the step of otherwise displaying the preselected
3 calling party telephone number when none of the second
4 plurality of calling party names corresponds to the
5 preselected personal identification code.

1 13. The method of Claim 10, wherein more than one
2 of the second plurality of calling party names
3 correspond to a selected one of the first plurality of
4 calling party telephone numbers.

1 14. The method of Claim 10, wherein the network
2 node is a wireless communications network node.

1 15. The method of Claim 10, wherein the
2 telephonic communication device is in electronic
3 communication with a conventional telephone terminal.

1 16. The method of Claim 10, wherein the
2 telephonic communication device is a mobile telephone.

1 17. The method of Claim 10, including the step of
2 verifying whether the telephonic communication device
3 supports receiving the preselected personal
4 identification code.

1 18. The method of Claim 10, including the step of
2 receiving a function code that enables the network node
3 to receive the preselected personal identification
4 code.

1 19. The method of Claim 18, including the step of
2 sending the preselected personal identification code
3 from the network node to the telephonic communication
4 device.

1 20. A system providing caller identification
2 services when the identity of the calling party is not
3 necessarily associated with a predetermined calling
4 party telephone number comprising:

5 a network node including a first index having a
6 first plurality of substituted calling party telephone
7 numbers and a second plurality of personal
8 identification codes, wherein selected ones of the
9 first plurality of substituted calling party telephone
10 numbers are associated in a one-to-one correspondence
11 with each one of the second plurality of personal
12 identification codes, and a first program module
13 adapted to receive a preselected personal
14 identification code and a preselected calling party
15 telephone number, wherein the first program module is
16 adapted to search the index for a selected substituted
17 calling party telephone number corresponding to the

18 preselected personal identification code, wherein the
19 preselected code is selected from the second plurality
20 of personal identification codes; and

21 a telephonic communication device including a
22 memory containing a second index including a third
23 plurality of substituted calling party telephone
24 numbers and a fourth plurality of calling party names,
25 wherein the second program module is adapted to receive
26 the selected substituted calling party telephone number
27 from the network node and to search the second index
28 for a selected calling party name corresponding to the
29 selected substituted calling party telephone number,
30 wherein the selected substituted telephone number is
31 selected from the third plurality of calling party
32 telephone numbers.

1 21. The system of Claim 20, wherein the network
2 node is adapted to receive a function code that prompts
3 sending the selected substituted telephone number to
4 the telephonic communication device.

1 22. The system of Claim 20, wherein the network
2 node is a Home Location Register (HLR) or a Visitor
3 Location Register (VLR).

1 23. The system of Claim 20, wherein the
2 telephonic communication device is in electronic
3 communication with a conventional telephone terminal.

1 24. The system of Claim 20, wherein the
2 telephonic communication device is a mobile telephone.

1 25. The system of Claim 20, wherein the
2 telephonic communication device includes a display, and
3 the selected calling party name is displayed on the
4 display.

1 26. The system of Claim 20, wherein the
2 telephonic communication device includes a display,
3 and the selected substituted telephone number is
4 displayed on the display when none of the fourth
5 plurality of calling party names corresponds to the
6 selected substituted telephone number.

1 27. A method of providing caller identification
2 services when the identity of the calling party is not
3 necessarily associated with a predetermined calling
4 party telephone number comprising the steps of:

5 receiving a preselected personal identification
6 code and a preselected calling party telephone number
7 at a network node including a memory containing a first
8 index including a first plurality of substituted
9 calling party telephone numbers, wherein selected ones
10 of the first plurality of substituted calling party
11 telephone numbers are associated in a one-to-one
12 correspondence with each one of a second plurality of
13 personal identification codes;

14 searching the first index for a selected
15 substituted calling party telephone number
16 corresponding to the preselected personal
17 identification code;

18 sending the selected substituted calling party
19 telephone number to a telephonic communication device
20 including a memory containing a second index including
21 a third plurality of substituted calling party
22 telephone numbers and a fourth plurality of calling
23 party names, wherein selected ones of the third
24 plurality of substituted calling party telephone
25 numbers are associated in a one-to-one correspondence
26 with each one of the fourth plurality of calling party
27 names; and

28 searching the second index for a selected calling
29 party name corresponding to the selected substituted
30 calling party telephone number.

1 28. The method of Claim 27, further comprising
2 the step of displaying the selected calling party name
3 corresponding to the selected substituted calling party
4 telephone number.

1 29. The method of Claim 27, further comprising
2 the step of otherwise displaying the selected
3 substituted telephone number when none of the fourth
4 plurality of calling party names corresponds to the
5 selected substituted telephone number.

1 30. The method of Claim 27, wherein the network
2 node is a wireless communications network node.

1 31. The method of Claim 27, wherein the
2 telephonic communication device is in electronic
3 communication with a conventional telephone terminal.

1 32. The method of Claim 27, wherein the
2 telephonic communication device is a mobile telephone.

1 33. The method of Claim 27, including the step of
2 verifying whether the node is authorized to receive
3 the preselected personal identification code.

1 34. The method of Claim 27, including the step of
2 receiving a function code that enables the network node
3 to receive the preselected personal identification
4 code.

1 35. A system providing caller identification
2 services when the identity of the calling party is not

3 necessarily associated with a predetermined calling
4 party telephone number comprising:

5 a network node including a first index having a
6 first plurality of calling party names and a second
7 plurality of personal identification codes, wherein
8 selected ones of the first plurality of calling party
9 names are associated in a one-to-one correspondence
10 with each one of the second plurality of personal
11 identification codes, and a first program module
12 adapted to receive a preselected personal
13 identification code and a preselected calling party
14 telephone number, wherein the first program module is
15 adapted to search the index for a selected calling
16 party name corresponding to the preselected personal
17 identification code, wherein the preselected code is
18 selected from the second plurality of personal
19 identification codes; and

20 a telephonic communication device including a
21 display and a second program module adapted to receive
22 the selected calling party name from the network node
23 and to display the selected calling party name on the
24 display.

1 36. The system of Claim 35, wherein the network
2 node is adapted to receive a function code that prompts
3 sending the selected calling party name to the
4 telephonic communication device.

1 37. The system of Claim 35, wherein the network
2 node is a Home Location Register (HLR) or a Visitor
3 Location Register (VLR).

1 38. A method of providing caller identification
2 services when the identity of the calling party is not
3 necessarily associated with a predetermined calling
4 party telephone number comprising the steps of:

5 receiving a preselected personal identification
6 code and a preselected calling party telephone number
7 at a network node including a memory containing a first
8 index including a first plurality of calling party
9 names, wherein selected ones of the first plurality of
10 calling party names are associated in a one-to-one
11 correspondence with each one of a second plurality of
12 personal identification codes;

13 searching the first index for a selected calling
14 party name corresponding to the preselected personal
15 identification code;

16 sending the selected calling party name to a
17 telephonic communication device, including a display;
18 and

19 displaying the selected calling party name on the
20 display.

1 39. The method of Claim 38, wherein the network
2 node is a wireless communications network node.

1 40. The method of Claim 38, including the step of
2 verifying whether the node is authorized to received
3 the preselected personal identification code.

1 41. The method of Claim 38, including the step of
2 receiving a function code that enables the network node
3 to receive the preselected personal identification
4 code.

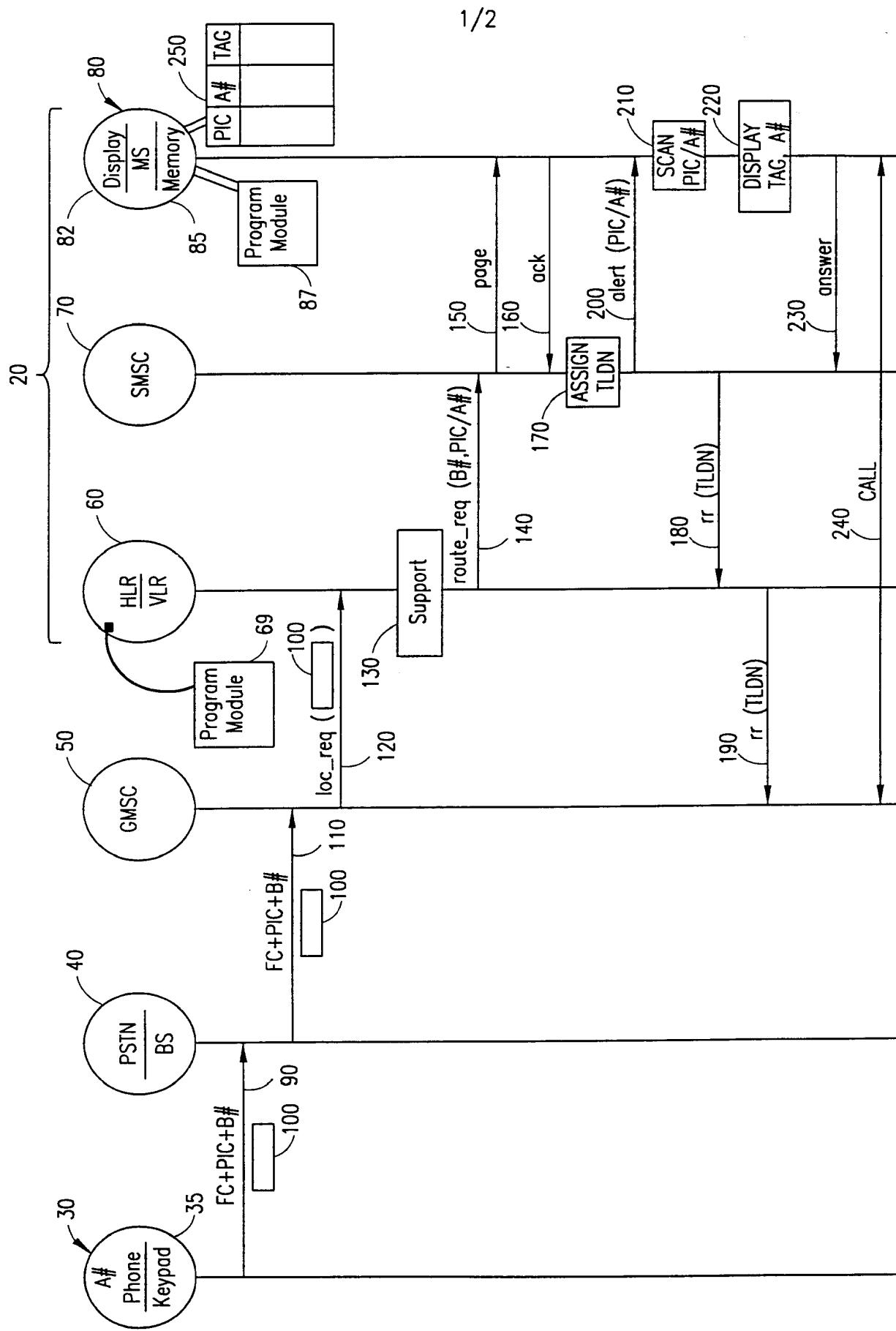


FIG. 1

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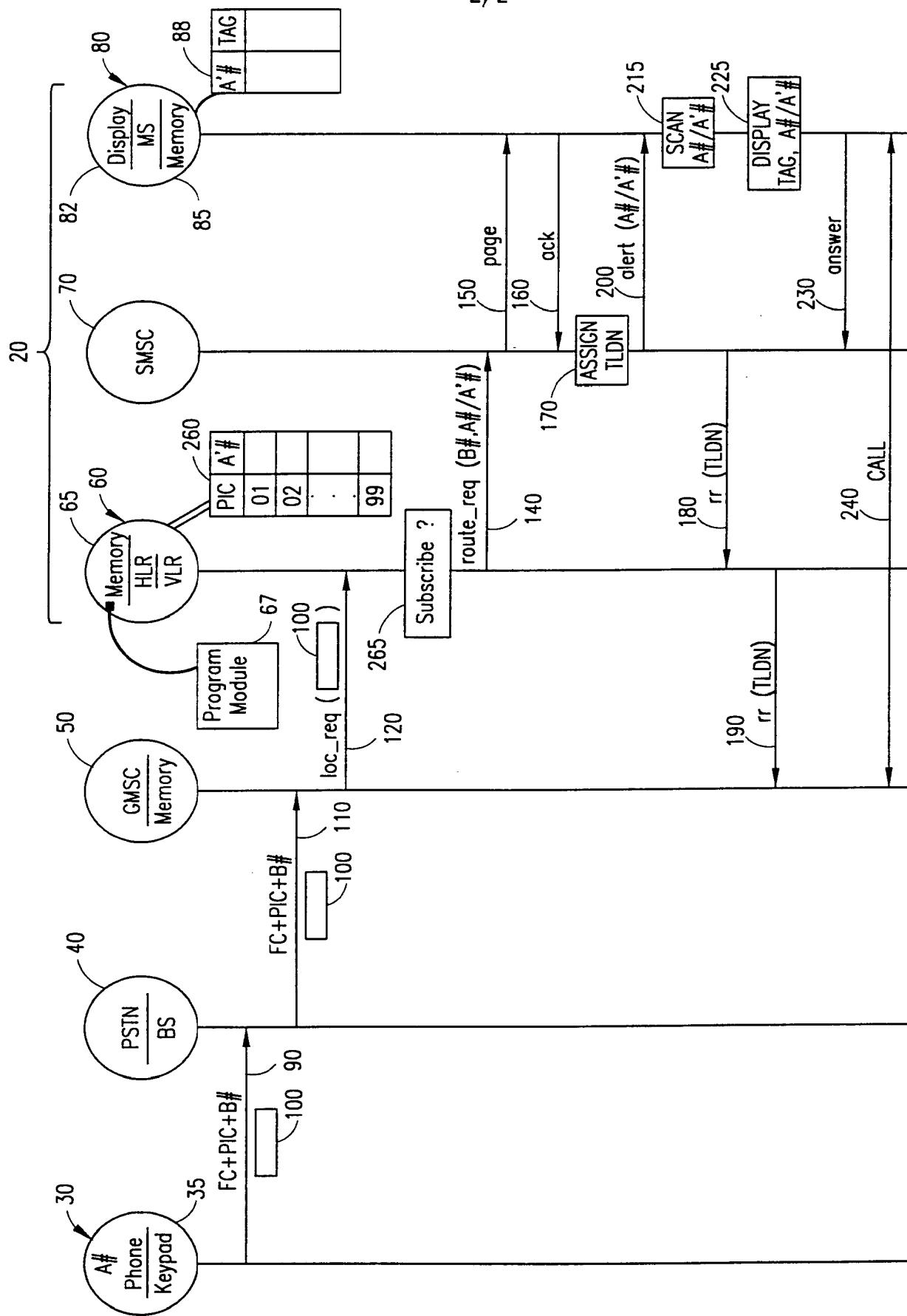


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01403

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04M 1/57, H04Q 3/72, H04Q 7/38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04M, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9849845 A2 (NORTHERN TELECOM LIMITED), 5 November 1998 (05.11.98), page 3, line 9 - line 19 --	1-41
A	WO 9744981 A1 (NOKIA TELECOMMUNICATIONS OY), 27 November 1997 (27.11.97), abstract --	1-41
P,A	WO 9957917 A1 (NOKIA NETWORKS OY), 11 November 1999 (11.11.99), abstract --	1-41

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family

Date of the actual completion of the international search

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Authorized officer

Erik Westin/LR
Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01403

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	EP 1014659 A2 (ALCATEL), 28 June 2000 (28.06.00), abstract -- -----	1-41

INTERNATIONAL SEARCH REPORT

Information on patent family members

04/12/00

International application No.

PCT/SE 00/01403

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WO	9744981	A1	27/11/97	AU AU EP FI FI JP	718787 B 2900197 A 0861567 A 103170 B 962128 A 11510030 T	20/04/00 09/12/97 02/09/98 00/00/00 21/11/97 31/08/99
WO	9957917	A1	11/11/99	AU FI	3933899 A 981009 A	23/11/99 07/11/99
EP	1014659	A2	28/06/00	DE	19859831 A	29/06/00